

	A	B	C	D	E	F	G	H	I	J	K
1	UCL Statistics for Data Sets with Non-Detects										
2	#VALUE!										
3	User Selected Options		#VALUE!								
4	Date/Time of Computation		ProUCL 5.17/5/2018 10:58:26 AM								
5	From File		ProUCL Input Nonporous Surfaces-2 Higher than 8 ft (060518) .xls								
6	Full Precision		OFF								
7	Confidence Coefficient		95%								
8	Number of Bootstrap Operations		2000								
9	#VALUE!										
10	Total PCBs										
11	#VALUE!										
12	General Statistics										
13	Total Number of Observations				105			Number of Distinct Observations			
14	Number of Detects				40			Number of Non-Detects			
15	Number of Distinct Detects				32			Number of Distinct Non-Detects			
16	Minimum Detect				0.51			Minimum Non-Detect			
17	Maximum Detect				5.7			Maximum Non-Detect			
18	Variance Detects				2.099			Percent Non-Detects			
19	Mean Detects				1.624			SD Detects			
20	Median Detects				0.815			CV Detects			
21	Skewness Detects				1.684			Kurtosis Detects			
22	Mean of Logged Detects				0.184			SD of Logged Detects			
23	#VALUE!										
24	Normal GOF Test on Detects Only										
25	Shapiro Wilk Test Statistic				0.737			Shapiro Wilk GOF Test			
26	5% Shapiro Wilk Critical Value				0.94			Detected Data Not Normal at 5% Significance Level			
27	Lilliefors Test Statistic				0.241			Lilliefors GOF Test			
28	5% Lilliefors Critical Value				0.139			Detected Data Not Normal at 5% Significance Level			
29	Detected Data Not Normal at 5% Significance Level										
30	#VALUE!										
31	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs										
32	KM Mean				1.188			KM Standard Error of Mean			
33	KM SD				1.006			95% KM (BCA) UCL			
34	95% KM (t) UCL				1.381			95% KM (Percentile Bootstrap) UCL			
35	95% KM (z) UCL				1.379			95% KM Bootstrap t UCL			
36	90% KM Chebyshev UCL				1.537			95% KM Chebyshev UCL			
37	97.5% KM Chebyshev UCL				1.913			99% KM Chebyshev UCL			
38	#VALUE!										
39	Gamma GOF Tests on Detected Observations Only										
40	A-D Test Statistic				2.369			Anderson-Darling GOF Test			
41	5% A-D Critical Value				0.762			Detected Data Not Gamma Distributed at 5% Significance Level			
42	K-S Test Statistic				0.239			Kolmogorov-Smirnov GOF			
43	5% K-S Critical Value				0.142			Detected Data Not Gamma Distributed at 5% Significance Level			
44	Detected Data Not Gamma Distributed at 5% Significance Level										
45	#VALUE!										
46	Gamma Statistics on Detected Data Only										
47	k hat (MLE)				1.81			k star (bias corrected MLE)			
48	Theta hat (MLE)				0.897			Theta star (bias corrected MLE)			
49	nu hat (MLE)				144.8			nu star (bias corrected)			
50	Mean (detects)				1.624			#VALUE!			
51	#VALUE!										
52	Gamma ROS Statistics using Imputed Non-Detects										
53	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs										
54	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)										
55	For such situations, GROS method may yield incorrect values of UCLs and BTVs										
56	This is especially true when the sample size is small.										
57	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates										
58	Minimum				0.01			Mean			
59	Maximum				5.7			Median			
60	SD				1.101			CV			
61	k hat (MLE)				1.141			k star (bias corrected MLE)			
62	Theta hat (MLE)				1.064			Theta star (bias corrected MLE)			
63	nu hat (MLE)				239.7			nu star (bias corrected)			
64	Adjusted Level of Significance (β)				0.0477			#VALUE!			
65	Approximate Chi Square Value (234.19, α)				199.8			Adjusted Chi Square Value (234.19, β)			
66	95% Gamma Approximate UCL (use when n>=50)				1.424			95% Gamma Adjusted UCL (use when n<50)			
67	#VALUE!										
68	Estimates of Gamma Parameters using KM Estimates										
69	Mean (KM)				1.188			SD (KM)			
70	Variance (KM)				1.013			SE of Mean (KM)			
71	k hat (KM)				1.394			k star (KM)			
72	nu hat (KM)				292.8			nu star (KM)			
73	theta hat (KM)				0.852			theta star (KM)			

	A	B	C	D	E	F	G	H	I	J	K
74			80% gamma percentile (KM)			1.858					90% gamma percentile (KM)
75			95% gamma percentile (KM)			3.198					99% gamma percentile (KM)
76			#VALUE!								
77			Gamma Kaplan-Meier (KM) Statistics								
78			Approximate Chi Square Value (285.79, α)			247.6					Adjusted Chi Square Value (285.79, β)
79			95% Gamma Approximate KM-UCL (use when $n \geq 50$)			1.371					95% Gamma Adjusted KM-UCL (use when $n < 50$)
80			#VALUE!								
81			Lognormal GOF Test on Detected Observations Only								
82			Shapiro Wilk Test Statistic			0.869					Shapiro Wilk GOF Test
83			5% Shapiro Wilk Critical Value			0.94					Detected Data Not Lognormal at 5% Significance Level
84			Lilliefors Test Statistic			0.221					Lilliefors GOF Test
85			5% Lilliefors Critical Value			0.139					Detected Data Not Lognormal at 5% Significance Level
86			Detected Data Not Lognormal at 5% Significance Level								
87			#VALUE!								
88			Lognormal ROS Statistics Using Imputed Non-Detects								
89			Mean in Original Scale			1.237					Mean in Log Scale
90			SD in Original Scale			1.014					SD in Log Scale
91			95% t UCL (assumes normality of ROS data)			1.401					95% Percentile Bootstrap UCL
92			95% BCA Bootstrap UCL			1.426					95% Bootstrap t UCL
93			95% H-UCL (Log ROS)			1.364					#VALUE!
94			#VALUE!								
95			Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution								
96			KM Mean (logged)			-0.0379					KM Geo Mean
97			KM SD (logged)			0.581					95% Critical H Value (KM-Log)
98			KM Standard Error of Mean (logged)			0.0804					95% H-UCL (KM -Log)
99			KM SD (logged)			0.581					95% Critical H Value (KM-Log)
100			KM Standard Error of Mean (logged)			0.0804					#VALUE!
101			#VALUE!								
102			DL/2 Statistics								
103			DL/2 Normal				DL/2 Log-Transformed				
104			Mean in Original Scale			1.238					Mean in Log Scale
105			SD in Original Scale			0.938					SD in Log Scale
106			95% t UCL (Assumes normality)			1.389					95% H-Stat UCL
107			DL/2 is not a recommended method, provided for comparisons and historical reasons								
108			#VALUE!								
109			Nonparametric Distribution Free UCL Statistics								
110			Data do not follow a Discernible Distribution at 5% Significance Level								
111			#VALUE!								
112			Suggested UCL to Use								
113			95% KM (Chebyshev) UCL			1.694					#VALUE!
114			#VALUE!								
115			Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL								
116			Recommendations are based upon data size, data distribution, and skewness.								
117			These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).								
118			However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.								
119			#VALUE!								

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13	33
14	65
15	1
16	2
17	2
18	61.9%
19	1.449
20	0.892
21	2.07
22	0.743
23	
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32	0.116
33	1.379
34	1.378
35	1.407
36	1.694
37	2.344
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41	Level
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43	Level
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47	1.691
48	0.96
49	135.3
50	#VALUE!
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58	1.215
59	0.82
60	0.906
61	1.115
62	1.089
63	234.2
64	#VALUE!
65	199.3
66	1.428
67	
68	
69	1.006
70	0.116
71	1.361
72	285.8
73	0.873

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74	2.536
75	4.705
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78	247.1
79	1.374
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83	rel
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85	rel
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89	-0.0106
90	0.635
91	1.401
92	1.445
93	#VALUE!
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96	0.963
97	1.881
98	1.269
99	1.881
100	#VALUE!
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104	0.0699
105	0.464
106	1.297
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113	#VALUE!
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